

Docket No.: M4065.0151/P151-A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Vishnu K. Agarwal, et al.

Application No.: Not Yet Assigned

Group Art Unit: 2814

Filed: August 17, 2001

Examiner: T. Doan

For: MULTILAYER ELECTRODE FOR A
FERROELECTRIC CAPACITOR

FIRST PRELIMINARY AMENDMENT

Box Non-Fee Amendment
Commissioner for Patents
Washington, DC 20231

Dear Sir:

Prior to examination on the merits, please amend the above-identified U.S. patent application as follows:

In the Specification

At page 1, before "BACKGROUND OF THE INVENTION," please insert the following new paragraph:

This patent application is a continuation application of U.S. patent application serial number 09/310,408, filed on May 12, 1999, entitled MULTILAYER ELECTRODE FOR A FERROELECTRIC CAPACITOR.

In the Claims

1. A ferroelectric or high dielectric constant capacitor, comprising:

an electrode having a platinum-rhodium layer and a layer comprising platinum material on top of the platinum-rhodium layer.

6. The capacitor of claim 1, wherein the layer comprising platinum material has a thickness within the range of about 50 to about 300 Angstroms.

7. The capacitor of claim 1, wherein the layer comprising platinum material has a thickness within the range of about 50 to about 150 Angstroms.

14. A capacitor, comprising:

a lower electrode having a platinum-rhodium layer and a layer comprising platinum material on top of the platinum-rhodium layer;

an upper electrode; and

a dielectric layer of a ferroelectric or high dielectric constant dielectric material formed between said lower and upper electrodes, wherein said dielectric layer is in contact with the platinum layer of said lower electrode.

19. The capacitor of claim 14, wherein the layer comprising platinum material has a thickness within the range of about 50 to about 300 Angstroms.

20. The capacitor of claim 14, wherein the layer comprising platinum material has a thickness within the range of about 50 to about 150 Angstroms.

38. A capacitor, comprising:

a lower electrode having a titanium layer, an alloy layer on top of the titanium layer, wherein the alloy layer comprises approximately 60 to approximately 97 percent platinum and approximately 3 to approximately 40 percent rhodium, and a layer comprising platinum material on top of the alloy layer;

an upper electrode; and

a dielectric layer of a ferroelectric or high dielectric constant dielectric material formed between said lower and upper electrodes, wherein said dielectric layer is in contact with the layer comprising platinum material of said lower electrode.

43. The capacitor of claim 38, wherein the layer comprising platinum material has a thickness within the range of about 50 to about 300 Angstroms.

44. The capacitor of claim 38, wherein the layer comprising platinum material has a thickness within the range of about 50 to about 150 Angstroms.

50. The capacitor of claim 38, wherein the upper electrode has a platinum layer and a platinum-rhodium layer on top of the layer comprising platinum material.

Please cancel claims 55 through 123 respectively.


REMARKS/ARGUMENTS

This application is a continuation application of U.S. patent application serial number 09/310,408, filed with the U.S. Patent and Trademark Office on May 12, 1999, entitled MULTILAYER ELECTRODE FOR A FERROELECTRIC CAPACITOR. Favorable action on this application is solicited.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **“Version with markings to show changes made.”**

Dated: August 17, 2001

Respectfully submitted,

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Version With Markings to Show Changes Made

1. A ferroelectric or high dielectric constant capacitor, comprising:

an electrode having a platinum-rhodium layer and a [platinum] layer comprising platinum material on top of the platinum-rhodium layer.

6. The capacitor of claim 1, wherein the [platinum] layer comprising platinum material has a thickness within the range of about 50 to about 300 Angstroms.

7. The capacitor of claim 1, wherein the [platinum] layer comprising platinum material has a thickness within the range of about 50 to about 150 Angstroms.

14. A capacitor, comprising:

a lower electrode having a platinum-rhodium layer and a [platinum] layer comprising platinum material on top of the platinum-rhodium layer;

an upper electrode; and

a dielectric layer of a ferroelectric or high dielectric constant dielectric material formed between said lower and upper electrodes, wherein said dielectric layer is in contact with the platinum layer of said lower electrode.

19. The capacitor of claim 14, wherein the [platinum] layer comprising platinum material has a thickness within the range of about 50 to about 300 Angstroms.

20. The capacitor of claim 14, wherein the [platinum] layer comprising platinum material has a thickness within the range of about 50 to about 150 Angstroms.

38. A capacitor, comprising:

a lower electrode having a titanium layer, an alloy layer on top of the titanium layer, wherein the alloy layer comprises approximately 60 to approximately 97 percent platinum and approximately 3 to approximately 40 percent rhodium, and a [platinum] layer comprising platinum material on top of the alloy layer;

an upper electrode; and

a dielectric layer of a ferroelectric or high dielectric constant dielectric material formed between said lower and upper electrodes, wherein said dielectric layer is in contact with the [platinum] layer comprising platinum material of said lower electrode.

43. The capacitor of claim 38, wherein the [platinum] layer comprising platinum material has a thickness within the range of about 50 to about 300 Angstroms.

44. The capacitor of claim 38, wherein the [platinum] layer comprising platinum material has a thickness within the range of about 50 to about 150 Angstroms.

50. The capacitor of claim 38, wherein the upper electrode has a platinum layer and a platinum-rhodium layer on top of the [platinum] layer comprising platinum material.